

CLAIMS

1. A relay apparatus comprising:

packet receiving unit for receiving an input packet;
data length detecting unit for detecting the data length
of the packet received by the receiving unit;

time interval detecting unit for detecting the
communication time interval of the packet received by said
packet receiving unit; and

band setting unit for setting the communication band of
a channel for sending out the packet received by said packet
receiving unit, based on the data length detected by said data
length detecting unit and the communication time interval
detected by said time interval detecting unit.

2. The relay apparatus according to claim 1, wherein said
band setting unit calculates said communication band by
dividing the total value of said data lengths for a
predetermined number of packets by the total value of said
communication time intervals for them.

3. The relay apparatus according to claim 1, wherein said
band setting unit calculates the communication band by
multiplying the total value of the data lengths for the
predetermined number of packets divided by the total value
of communication time intervals for them by a predetermined
value of less than 1.

4. The relay apparatus according to claim 1, wherein a first
packet and a second packet corresponding to high and low service
qualities respectively are mingled in the packets received
by said packet receiving unit, and said band setting unit sets
the communication band based on the data length and the
communication time interval corresponding to the first packet
requiring a high service quality.

5. The relay apparatus according to claim 1, wherein a first
packet having strict requirement for real time and a second
packet having less strict requirement for real time are mingled

in the packets received by said packet receiving unit, and said band setting unit sets the communication band based on the data length and the communication time interval corresponding to the first packet.

6. The relay apparatus according to claim 4, wherein the first packet is an IP packet conforming with the real time transport protocol.

7. The relay apparatus according to claim 6, wherein said data length detecting unit detects the data length based on the total length contained in an IP header of the IP packet, and said time interval detecting unit detects the communication time interval based on a time stamp contained in a real time transport protocol message of the IP packet.

8. The relay apparatus according to claim 4, further comprising cell segmentation unit for segmenting the first and second packets received by said packet receiving unit into the ATM cells,

ATM output control unit for outputting the ATM cells segmented by said cell segmentation unit to an ATM connection as the channel, and

switch control unit for controlling said ATM output control unit to output preferentially the ATM cells corresponding to the first packet, when the ATM cells corresponding to the first and second packets are mingled and input into said ATM output control unit.

9. The relay apparatus according to claim 8, wherein said ATM connection has a service category set in GFR, and said switch control unit has a minimum cell rate corresponding to the ATM connection set by said band setting unit.

10. The relay apparatus according to claim 8, wherein said ATM connection has a service category set in VBR, and said switch control unit sets an average cell rate corresponding to the ATM connection by said band setting unit.

11. The relay apparatus according to claim 8, wherein said band setting unit repetitively sets the communication band at predetermined timings, after the virtual connection is set as the channel.

12. The relay apparatus according to claim 8, wherein said band setting unit sets the communication band, when a permanent virtual connection is set as the channel.

13. The relay apparatus according to claim 8, wherein said band setting unit sets the communication band, when a switch type virtual connection is set as the channel.

14. The relay apparatus according to claim 8, wherein said band setting unit sets the communication band when a call setup is made in accordance with an upper-level layer protocol that is higher than a hierarchy corresponding to the packet, after the virtual connection is set as the channel.

15. A relay apparatus for use in a network for transmitting variable length data using a fixed length packet, wherein the connection of IP packet having a strict requirement for real time, and the connection having less strict requirement for real time are allocated to the same connection using a service category capable of assuring the minimum rate.